wherein the first bifurcated leg of the bifurcated fiber-optic cable is connected to the light source, the second bifurcated leg is connected to the means for analyzing a light signal, and the common leg is connected to the stationary end of the rotating coupler,

and wherein one end of the rotating fiber-optic cable is connected to the rotating end of the rotating coupler and the other end is held in close proximity to the substrate undergoing chemical mechanical polishing.

23. (amended) In a chemical mechanical polishing device for planarizing a film on a substrate comprising a polishing table, the improvement comprising

(i) a bifurcated fiber-optic cable having a common leg and two bifurcated legs,

(ii) a rotating fiber-optic cable with two ends,

(iii) a light source,

(iv) means for analyzing a light signal <u>to determine thickness and stopping thickness change when the thickness reaches a predetermined endpoint</u>, and

(v) a rotating coupler having a stationary end and a rotating end,

wherein the first bifurcated leg of the bifurcated fiber-optic cable is connected to the light source, the second bifurcated leg is connected to the means for analyzing a light signal, and the common leg is connected to the stationary end of the rotating coupler,

and wherein one end of the rotating fiber-optic cable is connected to the rotating end of the rotating coupler and the other end is held in close proximity to a side of the substrate undergoing chemical mechanical polishing, said <u>other</u> end illuminating a section of the film of the substrate and said analyzing means measuring a light signal returning from the section.

12/2
28. (amended) In a chemical mechanical polishing device for planarizing a film on a substrate, the improvement comprising

(i) a bifurcated fiber-optic cable having a common leg and two bifurcated legs,

(ii) a rotating fiber-optic cable with two ends,

(iii) a light source,

(iv) means for analyzing a light signal to determine thickness and stopping thickness change when the thickness reaches a predetermined endpoint, and

C3

(v) a rotating coupler having a stationary end and a rotating end,

wherein the first bifurcated leg of the bifurcated fiber-optic cable is connected to the light source, the second bifurcated leg is connected to the means for analyzing a light signal, and the common leg is connected to the stationary end of the rotating coupler,

and wherein one end of the rotating fiber-optic cable is connected to the rotating end of the rotating coupler and the other end is held in close proximity to a side of the substrate which is not undergoing chemical mechanical polishing, said other end illuminating a section of the film of the substrate and said analyzing means measuring a light signal returning from the section.

15
31. (amended) In a chemical mechanical polishing device for planarizing a film on a substrate comprising a polishing table, the improvement comprising

DO NOT ENTER THIS PART

(i) [a bifurcated fiber-optic cable having a common leg and two bifurcated legs,

(ii)] an electrical slipring,

[(iii)] (ii) a light source, [and]

(iii) a photodetector which converts a light signal into an electrical signal, and

(iv) means for analyzing [a light signal] an electrical signal to monitor the progress of planarization,

37 CFR 1.129(a)

C6

29

C6 cont'd.

wherein [the first bifurcated leg of the bifurcated fiber-optic cable is connected to the light source, the second bifurcated leg is connected to the means for analyzing a light signal, and the common leg is connected at one end to the electrical slipring,

and wherein another end of the common leg of the fiber-optic cable] the light source is held in close proximity to a side of the substrate undergoing chemical mechanical polishing, said [end] light source illuminating a section of the film of the substrate, and said [analyzing means analyzing] photodetector (1) is positioned to convert a light signal returning from the section to an electrical signal and (2) is connected to the electrical slipring to decouple the electrical signal from rotation, said electrical slipring additionally being connected to said means for analyzing which analyze the decoupled electrical signal to monitor the progress of planarization[, based on interferometry or spectrophotometry].

DO NOT ENTER THIS PART

37 CFR 1.129(a)

16

~~32.~~ (amended) The chemical mechanical polishing device as claimed in claim ~~31~~ 15, wherein the [measured] returning light signal has at least one wavelength greater than about 200 nanometers.

C4

17

~~33.~~ (amended) The chemical mechanical polishing device as claimed in claim ~~31~~ 15, wherein the [measured] returning light signal has at least one wavelength between about 200 nanometers and about 11,000 nanometers.

DO NOT ENTER THIS PART

37 CFR 1.129(a)

36. (amended) In a chemical mechanical polishing device for planarizing a film on a substrate, the improvement comprising

(i) [a bifurcated fiber-optic cable having a common leg and two bifurcated legs,

(ii)] an electrical slipring,

[(iii)] (ii) a light source, [and]

C7

30

(iii) a photodetector which converts a light signal into an electrical signal, and

(iv) means for analyzing [a light signal] an electrical signal to monitor the progress of planarization,

wherein [the first bifurcated leg of the bifurcated fiber-optic cable is connected to the light source, the second bifurcated leg is connected to the means for analyzing a light signal, and the common leg is connected at one end to the electrical slipring,

and wherein another end of the common leg of the fiber-optic cable] the light source is held in close proximity to a side of the substrate undergoing chemical mechanical polishing, said [end] light source illuminating a section of the film of the substrate, and said [analyzing means analyzing] photodetector (1) is positioned to convert a light signal returning from the section to an electrical signal and (2) is connected to the electrical slipring to decouple the electrical signal from rotation, said electrical slipring additionally being connected to said means for analyzing which analyze the decoupled electrical signal to monitor the progress of planarization[, based on interferometry or spectrophotometry].

DO NOT ENTER THIS PART 37 CFR 1.129(a) C 17 concl'd.

37. (amended) The chemical mechanical polishing device as claimed in claim 36, wherein the [measured] returning light signal has at least one wavelength between about 1,000 nanometers and about 11,000 nanometers.

C 15

REMARKS

Claims 17-38 are pending, of which claims 17, 18, 21, and 22 have been allowed.

Claims 19, 23, and 28 have been amended to clarify that the means for analyzing a light signal "determine[s] thickness and stop[s] thickness change when the thickness reaches a predetermined endpoint", the same language used in allowed claim 17.

C